**ITEC 2150**

**HW2**

**Summer 2018**

In Homework 2, you will be creating an abstract class that implements the Comparable interface. You will then create children for this class. The user will be allowed to enter the data. You will then print the information and write it to a file. This assignment requires 4 .java files to complete it.

Specific instructions:

Employee – this is an abstract class. Instance variables are:

* ~~String firstName – Cannot be blank and must be less than 16 characters~~
* ~~String lastName – Cannot be blank and must be less than 21 characters~~
* ~~double paycheck – Cannot be negative and maximum value is $12,500~~

~~Methods:~~

* ~~Constructor – 2 argument~~
* ~~Constructor – 3 argument~~
* ~~Getters/setters~~
* ~~Whatever is needed to implement the Comparable interface~~
* ~~toString()~~
* ~~An abstract method, calculatePayCheck()~~

~~HourlyEmployee – extends Employee~~

* ~~Instance fields~~
  + ~~double hours~~
  + ~~double hourlyRate~~
* ~~Methods~~
  + ~~Constructor – 2 argument~~
  + ~~Constructor – 4 argument~~
  + ~~Getters/setters~~
  + ~~Methods required to extend Employee~~
  + ~~toString() – should tell the user what type of employee, call the Employee toString() and then add the hours and hourlyRate~~

Manager – extends Employee

* Instance fields
  + ~~double – annualSalary valid range 0 to 250,000~~
  + ~~String division. Valid values: Sales, Dev, Product. Should default to Sales~~
  + ~~Getters/setters~~
  + ~~Any methods required to inherit Employee~~
  + ~~toString() – should tell the user what type of employee, call the Employee toString() and then add the annualSalary~~

~~InvalidEmployeeException – must be used to report errors and should be thrown anytime the values entered by the user are not valid.~~

EmployeeTester

* ~~Create an array of at least 3 Employee objects. You can use an ArrayList that is properly genericized.~~
* ~~Recommend methods to get the information for Hourly Employee and Manager. I actually created one to read and validate the first and last name.~~
* ~~Be sure to call calculatePayCheck on each object.~~
* ~~Use a random assignment of HourlyEmployees and Managers~~
* ~~Print the collection of employees~~
* ~~Sort the collection and print again.~~
* ~~Write the unsorted and sorted list to the file, do this while you are printing it.~~

Sample output:

Please enter the employee's first name

Please enter the employee's last name

Smith

First name length 0 is not correct.

Please enter the employee's first name

Fred

Please enter the hours for Fred

-5

Hours -5.00 is not a valid entry.

Please enter the hours for Fred

120

Hours 120.00 is not a valid entry.

Please enter the hours for Fred

45

Please enter the hourly rate for Fred

-10

Hourly rate -$10.00 is not a valid entry.

Please enter the hourly rate for Fred

200

Hourly rate $200.00 is not a valid entry.

Please enter the hourly rate for Fred

100

Please enter the employee's first name

Sally

Please enter the employee's last name

Last name length 0 is not correct.

Please enter the employee's last name

Johnson really Long Name

Last name length 24 is not correct.

Please enter the employee's last name

Johnson

Please enter the salary for Sally

-1500

Salary -$1,500.00 is not valid.

Please enter the salary for Sally

260000

Salary $260,000.00 is not valid.

Please enter the salary for Sally

125000

Please enter the division for Sally

Product Management

Division Product Management is not valid.

Please enter the division for Sally

Product

Please enter the employee's first name

John

Please enter the employee's last name

Thompson

Please enter the salary for John

75000

Please enter the division for John

Development

Division Development is not valid.

Please enter the division for John

Dev

The unsorted list:

Hourly Employee Fred Smith earned a monthly pay check of $4,500.00.

Fred worked 45.00 at an hourly rate of $100.00.

Manager Sally Johnson earned a monthly pay check of $10,416.67.

Sally earns an annual salary of $125,000.00.

Manager John Thompson earned a monthly pay check of $6,250.00.

John earns an annual salary of $75,000.00.

The sorted list:

Hourly Employee Fred Smith earned a monthly pay check of $4,500.00.

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John earns an annual salary of $75,000.00.

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